

12-17-08

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant(s):	Patrick C. St. Germain)
)
Application No.	10/682,444)
)
Filed:	October 9, 2003) Group Art Unit: 3721
)
For:	APPARATUS FOR MAKING INTERFOLDED PRODUCT)
)
Examiner:	Sameh H. Tawfik) Attorney Docket No. <u>SSS-106</u>

BRIEF ON APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the final rejection of claims 11-16, inclusive, in the above-identified application.

1. Real Party in Interest

This application is assigned to Speciality Systems Advanced Machinery, Inc.

2. Real Appeals and Interferences

There are no related appeals or interferences.

3. Status of Claims

Claims 11-16, inclusive, are under appeal and are presented in the claims Appendix hereto. Claim 11 is the sole independent claim.

Claims 1-10, inclusive, have been canceled.

4. Status of Amendments

No claim has been amended subsequent to the final rejection.

5. Summary of Claimed Subject Matter

Claim 11 is the sole independent claim and defines an apparatus for interfolding at least two sheets of material so as to form a web of interfolded sheets. (FIG. 4, p. 2, lines 4-9 and 18-21). At least two dispensers, such as parallel folding boards 14 and 34, receive webs 16 and 36 (p. 4, line 16). These webs are first preformed, i.e., folded longitudinally, so as to produce respective folded sheet materials 18 and 38 (page 4, lines 16-17). An interfolder comprising a pair of coacting folding rolls 46 and 48 is situated downstream from the dispensers 14 and 34 (FIG. 4). The preformed sheet material from the dispensers is received between folding rolls 46 and 48 to produce interfolded sheets of material 50 (FIG. 4, p. 4, lines 15-22).

6. Grounds for Rejection to be Reviewed on Appeal

Claims 11, 14 and 16 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 3,942,782 to Hermach.

Claims 11 and 13-16 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,088,707 to Stemmler in view of U.S. Patent No. 3,942,782 to Hermach.

Claim 12 stands rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,088,707 to Stemmler in view of U.S. Patent No. 3,942,782 to Hermach, as applied to claim 11, above, and further in view of U.S. Patent No. 4,824,426 to DuFresne.

7. Argument

A. Applicable Law - Anticipation

In order to anticipate under 35 U.S.C. §102(a), the prior art reference must disclose all elements of the claim within four corners of a single document, and must disclose those elements arranged or combined as in the claim. Net MoneyIn Inc. v. VeriSign Inc., 88 U.S.P.Q.2d 1751, 1758-9 (Fed. Cir. 2008); Conwell v. Sears, Roebuck & Co., 220 U.S.P.Q. 193 (Fed. Cir. 1983).

B. Applicable Law - Obviousness

A patent may not be granted where “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” KSR Int’l Co. v. Teleflex Inc., 82 U.S.P.Q.2d at 1385, 1391 (2007); citing 35 U.S.C. §103. The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 U.S.P.Q. 459, 467 (1966).

“Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” KSR 82 U.S.P.Q.2d at 1396. “To facilitate review, this analysis should be made explicit.” Id. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” In re Kahn, 441 F.3d 977, 988, 78 U.S.P.Q.2d 1329, 1336 (Fed. Cir. 2006).

It is the Examiner’s burden to establish *prima facie* obviousness. See In re Rijckaert, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). The Examiner’s burden of proof is manifold. The Examiner must demonstrate that the cited prior art includes “a suggestion of all the elements in a claim.” CFMT, Inc. v. Yieldup Int’l Corp., 68 U.S.P.Q.2d 1333, 1342 (Fed. Cir. 2003). The Examiner must also provide evidence that would demonstrate “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” KSR, 82 U.S.P.Q.2s at 1396.

To reiterate, to establish a *prima facie* case of obviousness, the following requirements must be satisfied. First, “a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the

background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does ... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." KSR, 82 U.S.P.Q.2d at 1396. Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. Amgen Inc. v. Chugai Pharm. Co., 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art references must teach or suggest all the limitations of the claims. In re Wilson, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). These requirements are not satisfied in this case.

C. Claims 11, 14 and 16 Are Not Anticipated by Hermach

The Examiner has misconstrued Hermach. This reference does not disclose an apparatus for interfolding at least two sheets of material. No interfolding is shown by Hermach. Figure 5 of Hermach unequivocally shows that no interfolding is taking place. Stacking folded pieces on top of one another is not interfolding. Second fold rolls 38 (col. 5, lines 2-3; Fig. 2) do not comprise an interfolder. Cf. U.S. Patent No. 5,088,707 to Stemmler which shows a typical interfolder apparatus.

As the Examiner is well aware, anticipation requires that each and every claim element is shown in the applied reference. That clearly is not the case here. Hermach does not show an interfolder. The Examiner's unsupported opinion that "... broadly considering the claimed 'interfolder' for producing 'interfolded sheets of material' could be nothing more than folding the folded sheets stacked on top of each other to form the claimed interfold" cannot support an anticipation rejection. Moreover, it is a technically incorrect opinion and a mere conjecture. The term "interfolder" is an art recognized term in the paper converting arts as evidenced by U.S. Patent No. 5,088,707 to Stemmler (Evidence Appendix, Tab 3). See, for example, Stemmler at col. 1, lines 9-11 and lines 24-26. The Examiner's contention in the Office Action of 07/17/2008 at page 2 that "...the claimed "interfolder" for producing

“interfolded sheets of material” could be nothing more than folding the folded sheets stacked on top of each other’ is an impermissible conjecture and distortion of the plain meaning of the term “interfolder” as used by those skilled in the art.

As previously recognized by the Examiner, claims 11, 14 and 16 call for an interfolder that comprises a pair of coacting folding rolls that together produce a stack of interfolded sheets. Interfolders are illustrated by U.S. Patent No. 1,219,239 and U.S. Patent No. 5,088,707, both of record. U.S. Patent No. 3,942,782 to Hermach, on the other hand, does not show an interfolder but a newspaper folding apparatus. Hermach’s apparatus does not and cannot produce a stack of interfolded sheets. Hermach’s product is shown in FIG. 5 where it can be readily seen that web sections A, B, C, D, E, F are not interfolded but merely stacked one on top of another. That is not interfolding. Independent claim 11 expressly calls for rolls that co-act to produce interfolded sheets of material.

Hermach only shows a single folding cylinder (cylinder 36) downstream from folding boards 26A-26C. The present claims call for an interfolder that comprises a pair of coacting folding rolls. A single folding cylinder as shown by Hermach cannot possibly interfold sheets of material.

Cylinder 37 is not a folding cylinder but a cutting cylinder, see col. 4, lines 67-68, for separating individual newspaper sections that then pass through rollers 38 and are individually placed into pockets of delivery fan wheel 39 for deposit on conveyor 40. See col. 5, lines 1-4 and FIG. 2. Second fold rollers 38 do not constitute an interfolder because rollers 38 do not coact to produce an interfolded product. Rollers 38 fold the entire newspaper. See, for example col. 4, line 64 to col. 5, line 14.

Cross-folding of a collated newspaper does not produce a stack of interfolded sheet material. See FIG. 5. Also, as can be seen in FIG. 2, rollers 38 are spaced from one another.

This anticipation rejection of claims 11, 14 and 16 is not supported by the record and should be withdrawn.

Specifically with respect to claim 14, this claim calls for knife rolls situated between the dispensers and the pair of folding rolls of the interfolder. No such elements are shown in Hermach.

Specifically with respect to claim 16, inasmuch as Hermach does not show an interfolder with a pair of folding rolls that receive therebetween preformed sheet material, there can be no anticipation of claim 16.

D. Claims 11 and 13-16 Would Not Have Been Obvious to One of Ordinary Skill

The Examiner concedes that the sheets disclosed by Stemmler lack the longitudinal fold line as well as the fold (Office Action of 07/17/08, page 3). Stemmler teaches very different expedients. Stemmler teaches the production of numerically correct stacks of interfolded sheets, an event that takes place downstream from the folding rolls. One of ordinary skill would not have had any motivation whatsoever to look upstream of the folding rolls when seeking to improve upon Stemmler's apparatus.

The shortcomings of Stemmler as a reference against the appealed claims is not cured by Hermach. This particular reference merely shows an apparatus for folding (not interfolding) newspaper pages.

Stemmler and Hermach are not combinable in any event. Hermach describes an apparatus for folding newspapers. That has nothing to do with interfolding webs of material. There is no reason whatsoever to interfold a newspaper, thereby making it more difficult to unfold for reading. One of ordinary skill most certainly would not have done so. Besides, the mechanical elements of Hermach's apparatus are vastly different from those of Stemmler (cf., for example, FIG. 1 of Stemmler with FIG. 2 of Hermach).

It is also improper, as here, to use the appellant's own specification as an instruction book on how to reconstruct the prior art. Panduit Corp. v. Dennison Mfg. Co., 1 U.S.P.Q.2d 1593, 1602 note 29. One of ordinary skill would not have had the appellant's own specification as a guide for assembly at the time this invention was made.

To properly combine the references, there must be some teaching, suggestion or inference in the references themselves that would have led one of ordinary skill in the relevant art to combine the appropriate teachings. That is not the case in this instance.

Here neither Stemmler nor Hermach provide the requisite motivation to pick, choose and assemble the claimed apparatus. The Examiner has failed to provide a rationale for the attempted combination of references. Stemmler is concerned about producing

numerically correct partial stacks from individual sheets T1, T2 interfolded in conventional manner (col. 4, lines 5-7). Stemmler focuses the attention of one of ordinary skill downstream from the folding rolls (col. 5, lines 33-42) to which webs W1 and W2 are fed conventionally. Stemmler indicates no need for an upstream modification of webs W1 and W2. Hermach seeks to expedite the folding and collation of newspaper pages, and has devised an apparatus expressly designed to do so. Hermach, however, does not and cannot interfold newspaper pages. That would have resulted in a product totally unacceptable to the reading public.

Neither Stemmler nor Hermach address the problem (compact packaging) recognized, addressed and solved by the appellant.

Regarding claims 13-16, the mere fact that isolated claim elements can be found in the prior art does not vitiate the patentability of these particular claims.

The Graham requirements for obviousness have not been satisfied vis-a-vis claims 11 and 13-16. In KSR International Co. v. Teleflex, Inc., 82 U.S.P.Q.2d 1385, 1397 (2007), the Court explained and affirmed the analysis required to support an obviousness rejection under Section 103(a) by stating the factual inquiries enumerated in Graham v. John Deere Co., 383 U.S. 1 (1966), are the basis for this purpose. These required factual inquiries are not supported by the record in this case to justify a rejection of claims 11 and 13-16 based on obviousness.

In particular, the relevant prior art is paper converting art as it pertains to apparatus for interfolding at least two sheets of material to form a web of interfolded sheets. Only one of the applied references, Stemmler, pertains to this art. Hermach, the other reference, pertains to apparatus for folding, not interfolding, of newspapers. As noted hereinabove, one of ordinary skill would not have had any reason to interfold a newspaper, thereby making the newspaper difficult, if not impossible, to read.

As to the differences between the claimed invention and the prior art, the Examiner has focused on similarities rather than differences. The Stemmler apparatus and the Hermach apparatus are each designed and built for a different purpose and a different product. The Examiner's contention that one of ordinary skill would have looked to Hermach to improve Stemmler's apparatus lacks the necessary factual underpinnings. As appellant has pointed out time and time again, interfolding has been known for close to 100 years as

evidenced by U.S. Patent No. 1,219,239 (1917) of record, yet prior to appellant's invention a folding device upstream of the interfolder rolls has not been utilized. As is well established, the claimed invention must be looked at as a whole. In determining obviousness it is not relevant that some aspects of the claims may have been otherwise known in the art. Jones v. Hardy, 220 U.S.P.Q. 1021, 1025 (Fed. Cir. 1984). Virtually all inventions are necessarily combinations of old elements. One cannot pick and choose among individual parts of assorted prior art references as a mosaic to create a facsimile of the claimed invention. Akzo N.V. v. United States ITC, 1 U.S.P.Q.2d 1241, 1246 (Fed. Cir. 1986).

Specific lack of factual underpinnings for dependent claims 13-16, inclusive, are enumerated hereinabove.

The level of ordinary skill in the pertinent art remains unresolved. No findings for this particular prong of the Graham inquiries are of record or can be supported by the record.

Objective evidence of unobviousness stands unrebutted. Specifically, the nomination for the IDEA Achievement Award is evidence of unobviousness.

No factual basis for the legal conclusion of obviousness has been established in this case.

A *prima facie* case of obviousness has not been established. One of ordinary skill would not have even attempted to interfold a newspaper. The selection of Stemmler and Hermach as references in this case clearly has been arrived at by impermissible reliance on the appellant's own specification for guidance. In any event, even the attempted combination of references would not have made the present invention obvious to one of ordinary skill in the art.

The Graham requirements have not been met.

E. Claim 12 Would Not Have Been Obvious to One of Ordinary Skill

The Examiner concedes that neither Stemmler nor Hermach disclose a double "c"-shaped fold as called for in claim 12 (Office Action of 07/17/08, page 4). Neither does DuFresne. The double "c"-shaped fold is illustrated in appellant's FIGURE 3(a) at 118. Nothing of the kind is shown by Stemmler, Hermach or DuFresne. Only zig-zag folds are

shown by DuFresne and Stemmler. See, for example, FIG. 3 of DuFresne and FIGS. 6 & 7 of Stemmler.

Accordingly, any motivation to combine the references as proposed by the Examiner is lacking. The conclusion is inescapable that the combination of the teachings of DuFresne with those of Stemmler and Hermach has been arrived by impermissible reliance on appellant's own specification for guidance.

F. Conclusion

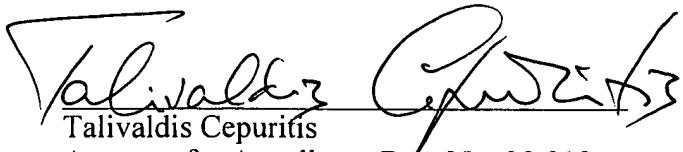
Hermach fails to disclose all claim elements arranged or combined as in the present claims 1, 14 and 16. Accordingly, there is no valid basis for the rejection of these claims as anticipated by Hermach. The rejection based on anticipation should be reversed.

The obviousness rejections of claims 11 and 13-16, as well as the obviousness rejection of claim 12 fail to satisfy the Graham v. John Deere requirements. The required factual inquiries are not supported by the record. The level of ordinary skill in the paper converting art remains unresolved. Objective evidence of unobviousness has been ignored, and stands unrebutted.

The Examiner has failed to establish a *prima facie* case of obviousness. The obviousness rejections cannot be permitted to stand and should be reversed.

The Appeal Brief fee of \$250.00 has been paid previously. M.P.E.P. 1204.01. Kindly charge any additional fees, if required, or credit any overpayment concerning this matter to our Deposit Account No. 15-0508.

Respectfully submitted,



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Attorney for Appellant, Reg. No. 20,818

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CLAIMS APPENDIX

Claims on Appeal

Claim 11. An apparatus for interfolding at least two sheets of material for forming a web of interfolded sheets of material, the apparatus comprising:

a) at least two dispensers performing sheets of material to provide at least one longitudinally extending fold line and at least one fold respectively; and

b) an interfolder downstream from said dispensers and comprising a pair of coacting folding rolls for receiving therebetween preformed sheet material from each of the dispensers and producing interfolded sheets of material.

Claim 12. The apparatus of claim 11 wherein the sheets of material respectively include a plurality of longitudinally extending fold lines and a plurality of folds together defining sheets of material incorporating a double “c” shaped fold.

Claim 13. The apparatus of claim 11 wherein the sheets of material respectively include a plurality of spaced-apart transversely extending perforation lines.

Claim 14. The apparatus of claim 11 which includes knife rolls between the dispensers and the folding rolls for clean cutting the preformed sheets of material.

Claim 15. The apparatus of claim 11 which includes perforating rolls between the dispensers and the folding rolls for perforating the preformed sheets of material.

Claim 16. The apparatus of claim 11 wherein the dispensers are folding boards.

EVIDENCE APPENDIX

Tab 1 Finalist for IDEA 07 Achievement Award (Exhibit A)

Tab 2 U.S. Patent No. 1,219,239 to Brown et al.

Tab 3 U.S. Patent No. 5,088,707 to Stemmler

RELATED PROCEEDINGS APPENDIX

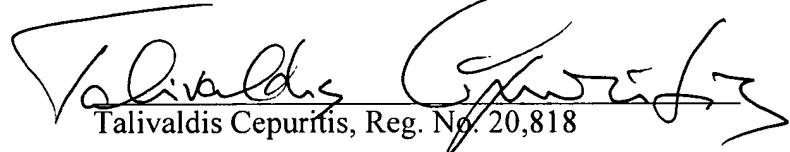
None.

CERTIFICATE OF EXPRESS MAIL

EM 125708362 US
"Express Mail" mailing label number

December 16, 2008
Date of Deposit

I hereby certify that this BRIEF ON APPEAL, CLAIMS APPENDIX, EVIDENCE APPENDIX and RELATED PROCEEDINGS APPENDIX are being deposited in an envelope with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and addressed to Mail Stop Appeal Brief Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.


Talivaldis Cepuritis, Reg. No. 20,818

Talivaldis Cepuritis

From: Tom Gazdik [tgazdik@ssspecialtysystems.com]
Sent: Friday, January 19, 2007 1:31 PM
To: Talivaldis Cepuritis
Subject: FW: S&S Cheetah nominated for IDEA Achievement Award
Attachments: IDEA07-2 Award Nominations.doc

Good afternoon Tali. This is the nomination announcement along with the nomination papers. If you should require any additional information please do not hesitate to contact us. Thank you and have a great day. TomG

From: Tom Gazdik [mailto:tgazdik@ssspecialtysystems.com]
Sent: Friday, January 05, 2007 7:56 AM
To: 'Michael Jacobsen'
Cc: Susan Stansbury
Subject: RE: S&S Cheetah nominated for IDEA Achievement Award

Good morning Michael. Thank you for your update. That is exciting news for our organization. Below I have highlighted the work "makes". It should be removed from the sentence. Also, if interested, I have the new packaging carton with Z-TAH fold product inserted into it as an example should you require a photograph. Thank you and have a great day. TomG

Tom Gazdik
 715-372-8988


S&S SPECIALTY SYSTEMS, INC.

Iron River, WI 54847
www.SSspecialtysystems.com

-----Original Message-----

From: Michael Jacobsen [mailto:mike@jacorpub.com]
Sent: Thursday, January 04, 2007 4:13 PM
To: tgazdik@ssspecialtysystems.com
Subject: S&S Cheetah nominated for IDEA Achievement Award

Tom:

Congratulations are in order for S&S Specialty Systems' selection as one of three finalists in your product category for the prestigious IDEA07 Achievement Awards, co-sponsored by INDA, Association of the Nonwoven Fabrics Industry, and Nonwovens Industry magazine.

Your product the CHEETAH equipment was selected by an independent industry committee as a finalist in the Equipment category from more than 20 other nominations.

For the third consecutive IDEA show, INDA and Nonwovens Industry magazine will recognize the leading companies, individuals and new products in the global engineered fabrics industry. The awards will be presented during IDEA07, April 24-26, 2007, at the Miami Convention Center in Miami Beach, FL.

Here's how the process works: On February 1 we will post the list of three finalists in the five separate categories Roll Goods, Machinery & Equipment, Raw Materials, Short-Life End Product, and Long-Life End Product on the Nonwovens Industry web site at www.nonwovens-industry.com <<http://www.nonwovens-industry.com>> , as well as on www.inda.org <<http://www.inda.org>> . Members of the industry are then invited to vote in each category and then the winners are announced during IDEA07.

Although there is nothing for your company to do at this point, I wanted to notify you in advance and to confirm the exact name and description of the product (see below). Please review this and reply to me with any additional information we should include about the product in any promotional materials and on the voting site. We will be announcing the finalists in a series of press releases later this month and in the February issue of Nonwovens Industry, as well as on www.nonwovens-industry.com <<http://www.nonwovens-industry.com>> web site.

We do ask that all of the finalists plan to attend the ceremony on the second day of IDEA07 in Miami Beach, April 25. I hope you can make plans to attend. More information on IDEA07 is available at www.inda.org <<http://www.inda.org>> .

I am sending this note to you either because your name was mentioned as the contact person during the nomination process or it was supplied by INDA. Please let me know if I should be sending this information to someone else.

That's it for now. Again, congratulations and I look forward to working with you or someone else in your organization as we take the next steps in the IDEA07 Achievement Awards process and towards IDEA07 in Miami Beach.

I look forward to hearing from you soon.

Sincerely,
Michael Jacobsen
INDA
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Midland Park, NJ 07432
201-612-6601
201-612-6677 Fax
mjacobsen@inda.org

PRODUCT DESCRIPTION

Company: S&S Specialty Systems Inc.

Product: CHEETAH equipment

CONTACT: Tom Gazdik, TGazdik@SSSpecialtySystems.com

Introduced: February 2006

Description: The new Cheetah C-Fold interfolded cross-folds are compact folded, yet full-size nonwoven items for napkins, food service, cleaning and disposables applications. The Cheetah production lines were designed to produce Z-TAH FOLDS products. This equipment offers unique new product folds with a small folded "footprint" that opens to a full-size napkin. The resulting compact package size makes gives marketers new options for packaging, shipping and store shelf space strategies.

Benefits of the Cheetah technology include:

• Cheetah machinery specializes in inter-folded products with production readiness to meet new market demands of soft, high-stretch nonwovens.

- € Cheetah equipment delivers a very compact package that dispenses a full-size product.
- € It offers new options for packages that consume less space on a retail shelf or industrial storage space.
- € Cheetah products appeal to take-along and travel markets because of the small package size.
- € Cheetah product features serve the toweling industry for food service and industry cleaning and hand wiping.

INDA - IDEA AWARDS NOMINATION

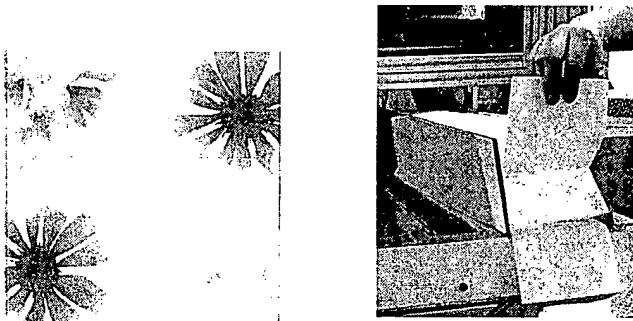
✓ Short Life End Use

Company Name: S&S Specialty Systems Inc.

Product Name: **Z-TAH Folds.**

Product Description: Z-TAH FOLDS brings convenience and elegance back to napkins that use airlaid nonwovens with linen and "woven-look" emboss patterns. This unique new product fold has a small folded "footprint" that opens to a full-size napkin. Its compact package size makes it easy for designers to create packs that can sit out on the counter and table rather than languishing on the pantry shelf.

It's also ideal for other disposables including wipers, "towels" and cleaning "cloths." The Z-TAH FOLDS solution helps conserve shipping shelf space, from the factory to the store aisle. With marketers looking for new options for disposable products, Z-TAH FOLDS offers new configurations.



(Sample box to be provided)

S&S Specialty Systems' patent-pending developments, under the Z-TAH FOLDS brand name include interfolded cross-folds, off-set interfolded products and off-set interfolded products with a gap to shorten the cut-off length. Benefits of this technology include:

- Being able to deliver a very compact package that dispenses a full-size product.
- Offering new options for packages that consume less space on a retail shelf or industrial storage space.
- Appealing to take-along and travel markets because of the small package size.
- Opening options from top or side with interfolded one-at-a-time dispensing.
- Features to serve the toweling industry for food service and industry cleaning and hand wiping.
- Leading to a new generation of consumer packaging such as more decorative napkin containers that can sit right on the counter or table.

S&S, with its Product Development team, has transitioned from a market support role to a proactive market-driven approach. "In the last few years, we have realized that we needed to address a changing climate," says Tom Gazdik, Marketing Director. "Increasingly, we can offer new direction for folded product formats in markets approaching saturation with older product styles."

Date of Launch: February, 2006 at S&S Specialty Systems Open House

Contact: Tom Gazdik, Marketing Director - S&S Specialty Systems 715-372-8988

TGazdik@SSSpecialtySystems.com

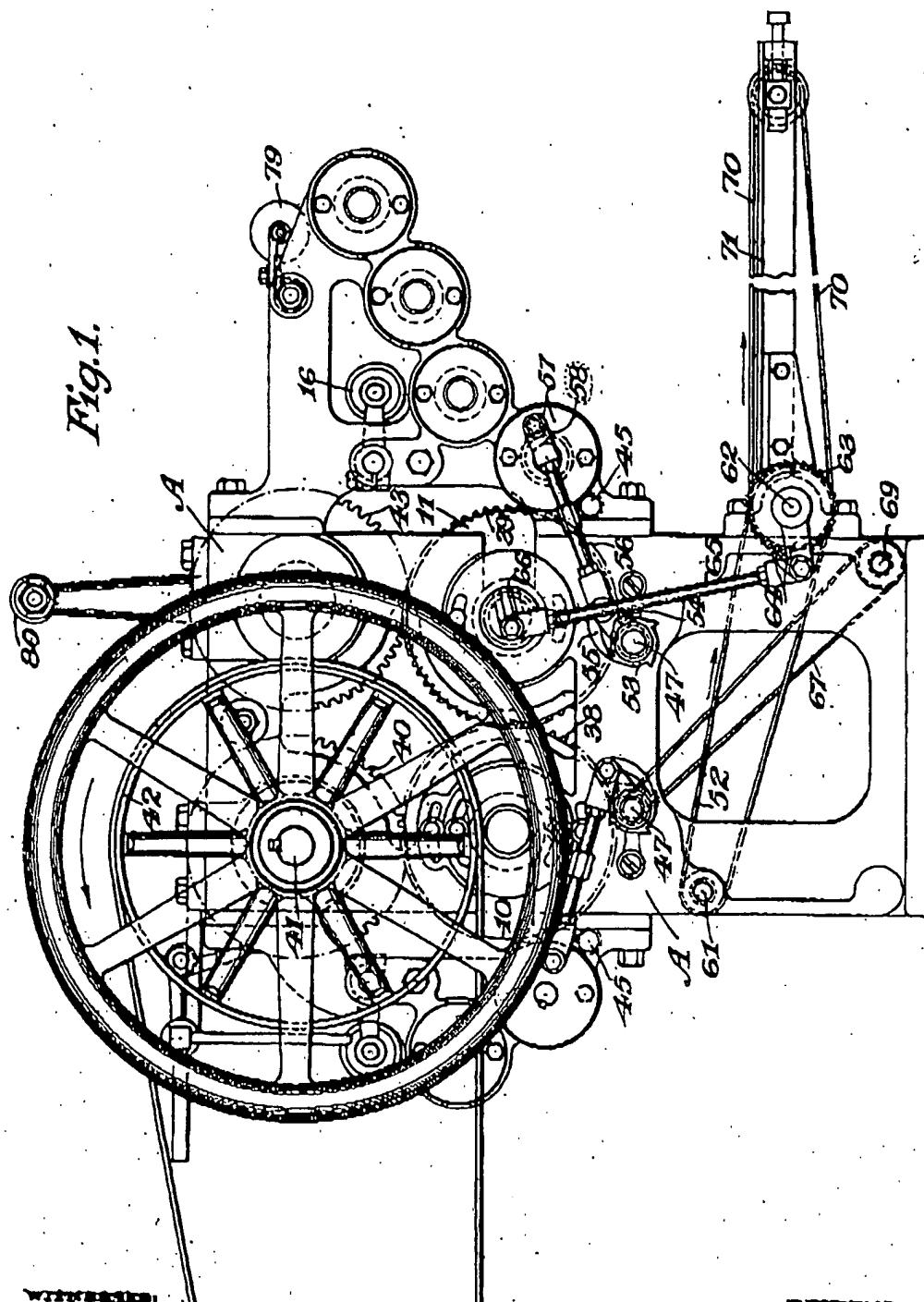
H. P. BROWN & C. L. JOHNSTON.
PAPER TOWEL AND TISSUE MACHINE.

APPLICATION FILED OCT. 2, 1915.

1,219,239.

Patented Mar. 13, 1917.

5 SHEETS—SHEET 1.





US005088707A

United States Patent [19]

Stemmler

[11] Patent Number: 5,088,707

[45] Date of Patent: Feb. 18, 1992

[54] METHOD AND APPARATUS FOR THE PRODUCTION OF NUMERICALLY CORRECT STACKS

4,778,441 10/1988 Couturier 493/425
4,824,426 4/1989 DuFresne 493/346

[75] Inventor: Kurt Stemmler, Neuwied, Fed. Rep. of Germany

FOREIGN PATENT DOCUMENTS

89163 7/1980 Japan 270/39

[73] Assignee: Winkler & Dunnebier
Maschinenfabrik und Eisengiesserei
KG, Neuwied, Fed. Rep. of
Germany

Primary Examiner—Edward K. Look
Assistant Examiner—Therese M. Newholm
Attorney, Agent, or Firm—Collard, Roe & Galgano

[21] Appl. No.: 565,231

[57] ABSTRACT

[22] Filed: Aug. 9, 1990

A method and apparatus for producing numerically correct partial stacks from individual leaves or sheets interfolded in a U-shaped or zigzag form on an interfolder. A double stream is formed from one or more streams of sheets by staggering or guiding together. This double stream is then continuously folded into zigzag form and piled up in a continuously growing stack, from which partial stacks of a specific size are separated. Gaps are formed in the streams of sheets which simplify the introduction of separating elements into the stack. For this purpose, sheets are removed from the streams of sheets and optionally placed accurately in position on successive sheets.

[30] Foreign Application Priority Data

Aug. 19, 1989 [DE] Fed. Rep. of Germany 3927422

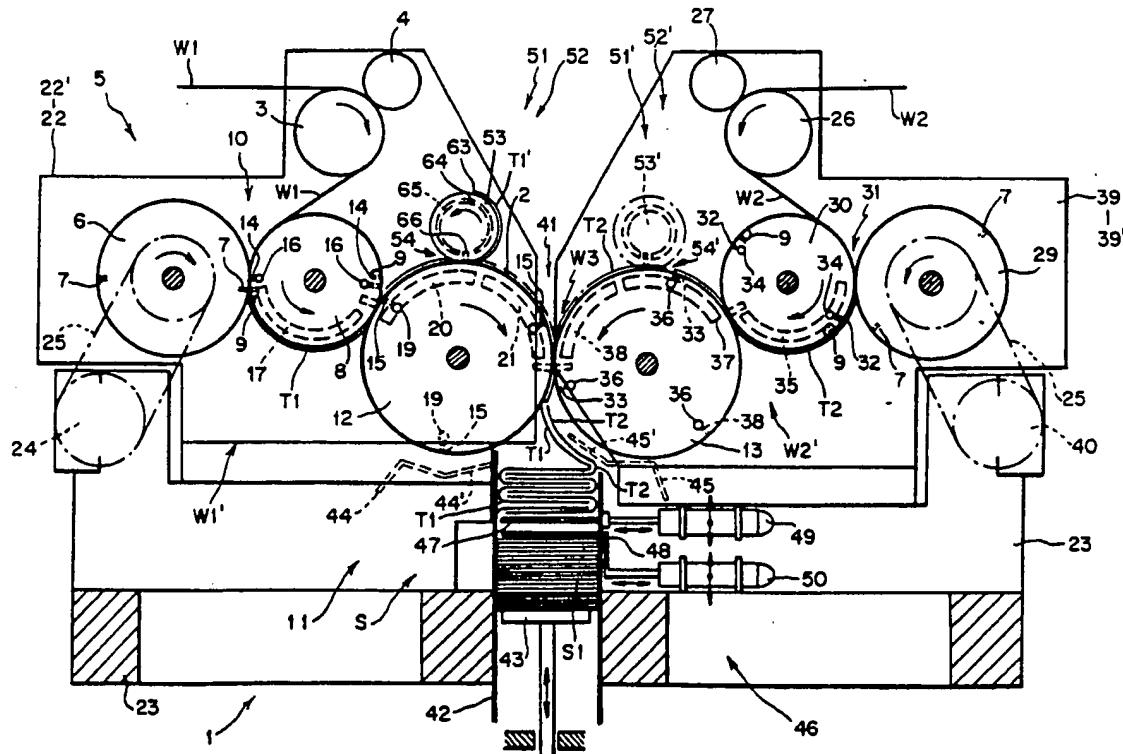
19 Claims, 6 Drawing Sheets

[51] Int. Cl. 5 B41L 1/32
[52] U.S. Cl. 270/39; 270/32
[58] Field of Search 270/31, 32, 39, 40,
270/41, 47, 52, 52.5, 95; 493/351, 360-363, 409,
412-417, 405

[56] References Cited

U.S. PATENT DOCUMENTS

4,717,135 1/1988 Hathaway 270/39
4,770,402 9/1988 Couturier 270/39



UNITED STATES PATENT OFFICE.

HORACE P. BROWN AND CLARENCE L. JOHNSTON, OF OAKLAND, CALIFORNIA.

PAPER TOWEL AND TISSUE MACHINE.

1,219,239.

Specification of Letters Patent. Patented Mar. 13, 1917.

Application filed October 2, 1915. Serial No. 53,726.

To all whom it may concern:

Be it known that we, HORACE P. BROWN and CLARENCE L. JOHNSTON, citizens of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Paper Towel and Tissue Machines, of which the following is a specification.

This invention relates to means for cutting, folding and interleaving paper towels and tissue; and has for its object to simplify and improve the construction and operation of such means, and facilitate the delivery of the folded material from the machine.

In carrying out this object, we employ, in connection with improved cutting, folding and interleaving devices, which are of the general type disclosed and claimed in our co-pending application No. 806,732, filed December 15, 1913, a series of stripper fingers operable to remove the folded paper from each cylinder as soon as released by the folding jaws thereon; a tumbler bar co-acting with each series of stripper fingers to turn the folded paper in regular order away from the cylinder and direct it upon traveling belts, which belts carry the material in interleaved stacks to a receiving bench, from which an attendant may remove same for bundling and wrapping, and means, in connection with the machine, for printing at regularly spaced intervals a mark upon the paper as it is fed in a continuous web to the folding cylinders, in such a position that the mark will appear upon the exposed edge of certain of the folded papers to indicate to the attendant the quantity delivered.

One form which our invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of a machine embodying our invention.

Fig. 2 shows a sectional view of the same taken on the line 2—2 of Fig. 8.

Fig. 3 shows an end elevation of the machine shown in Fig. 1.

Figs. 4 and 5 show diagrammatic views of the machine, taken on the lines 4—5 of Fig. 8, and illustrating different positions of the mechanism therein.

Referring now in detail to the form of our invention illustrated, it will be seen that the machine comprises, generally, a frame A carrying co-operative folding and interleaving cylinders 10 and 11, arranged in pairs,

each being provided with diametrically opposed gripping jaws 12 and folder blades 13, alternately spaced, the gripping jaws on one cylinder being timed to coact with the folder blades on the opposite cylinder, and transfer pins 14, adjacent to each jaw, to carry the folded paper from one cylinder to the other, so that the pieces are delivered alternately by the cylinders in folded and interleaved stacks. Paper is fed in continuous webs 15 to opposite sides of the machine, passing through feed or guide rollers 16 and over the adjacent folding cylinder where a severing device 17 co-operates with each cylinder to cut the paper into suitable lengths for forming towels and the like.

Each severing device comprises a pair of diametrically opposed, stationary cutting blades 18, carried on rotatable arms 19, which blades are adapted to co-operate with and enter a slot 20 formed in the cylinder adjacent to each folder blade 13. A rubber gripping block 21, carried on each arm 19 in front of each blade 18, upon coming in contact with the cylinder engages the paper and positively holds it against tearing or slipping until it has been severed by the blade 18 entering the slot 20, as best shown in Fig. 2.

Immediately in the rear of the cutting blade 18 and attached to the arm 19 is a guard block 22 normally pressed outward by a spring 23 and which, upon meeting with the adjacent cylinder, forces the severed end of the incoming web of paper down adjacent to the folder blade, while a set of pick-up pins 24, carried on the cylinder and movable outwardly, pierces the leading end of the paper and retains it in place compelling the web to be drawn around with the rotating cylinder. This guard block, being normally projected, comes in contact with the cylinder before the blade 18 enters its slot; and in conjunction with the gripping block 21 serves to hold the paper taut while the blade is doing the severing. The guard block, thereafter, strips the paper from the blade and holds it in position to permit the pick-up pins to engage the same.

The pick-up pins 24 (two sets to each cylinder) are mounted on arms 25 fixed to a tension rock shaft 26 which carries at one end a crank connection 27 operating inside a stationary cam 28 fixed to the frame. The transfer pins 14 are likewise carried on arms 29, fixed to a tension rock shaft 30 con-